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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/593,605	09/21/2006	Geoffrey Mark Condick	4623-062133	1664

28289 7590 10/14/2011

THE WEBB LAW FIRM, P.C.
ONE GATEWAY CENTER
420 FT. DUQUESNE BLVD, SUITE 1200
PITTSBURGH, PA 15222

EXAMINER	
PAIK, SANG YEOP	
ART UNIT	**PAPER NUMBER**
3742	

NOTIFICATION DATE	DELIVERY MODE
10/14/2011	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patents@webblaw.com

Office Action Summary	Application No.	Applicant(s)	
	10/593,605	CONDICK, GEOFFREY MARK	
	Examiner	Art Unit	
	SANG PAIK	3742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 April 2011*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

5)☒ Claim(s) *1-15* is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *1-15* is/are rejected.

8)☐ Claim(s) _____ is/are objected to.

9)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

12)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-4, 6, 9, 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Farrell et al (US 5,383,019) in view of Ukon et al (US 2002/0071117), and Krupa et al (US 5,642,190) or Shiller (US 3,692,415).

Farrell shows the spectrometer and its control method claimed including a detector for detecting a signal from a plasma sample from an inductively coupled plasma torch, a lens, and a control section including a computer with a software for receiving a signal from the detector and a RF power generator for powering the induction coils to generate the plasma torch in response to the detector. But, Farrell does not explicitly show that the detector is for detecting a change in the plasma that collapses into a toroidal plasma in a spectrometer tube.

Ukon shows that it is known to provide a plasma spectrometer with an optical detector directed in an optical axis that is directed to the plasma for detecting the plasma status including plasma shape which is analyzed by the light generated by the plasma, and Ukon teaches that the plasma status dictates or influences the analytical performances of the plasma torch. Ukon further shows a computer along with a video

camera for monitoring the plasma status, including the plasma intensity, image and position.

Krupa or Shiller shows that it is known in the art that a plasma is created in a tube for allowing a spectroscopic or photometric analysis. Krupa and Shiller also show that it is well known to use an optical fiber for transmitting light to the analysis device.

In view of Ukon, it would have been obvious to one of ordinary skill in the art to adapt the detector of Farrell with a spectrometer, which is shown to detect varying degrees of the light generated by the plasma to determine the plasma status including the plasma shape/contour and plasma intensity, the operating conditions of the plasma would be further controlled to either shut down or power up the plasma generator depending on the detected plasma status including a toroidal shape and its contour which would include its top and tail portion of the plasma that will exist. And, in view of Krupa or Shiller, it would have been obvious to one of ordinary skill in the art to adapt Farrell with the plasma created in a tube which is well known in the art, and it would also have been obvious use an optical fiber, which is also well known in the art, for conducting or transmitting light to the plasma analysis detector.

3. Claims 5, 7, 8, 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Farrell in view of Ukon, Krupa, and Shiller, as applied to 1-4, 6, 9, 14 and 15 above, and further in view of Ni et al (US 6,526,355).

Farrell in view of Ukon, Krupa, and Shiller, shows the structure claimed except for a photodiode.

Ni shows that it is known in the art that a plasma spectrometer is a photodiode array or a one or two dimensional CCD array.

In view of Ni, it would have been obvious to one of ordinary skill in the art to adapt Farrell, as modified by Ukon, Krupa, and Shiller, with the optical detector in the form of a pixel photodiode array or any other suitable array, to more accurately and effectively measure the light generated by the plasma.

4. Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Farrell in view of Ukon, Krupa, and Shiller as applied to claims 1-4, 6, 9, 14 and 15 above, and further in view of Tanaka et al (US 2003/0192864).

Farrell in view of Ukon, Krupa, and Shiller shows the structure claimed except for the detector for measuring the impedance value of the plasma.

Tanaka shows that it is known to provide a plasma device with an impedance detector for detecting the impedance of the plasma for determining a plasma status.

In view of Tanaka, it would have been obvious to one of ordinary skill in the art to adapt Farrell, as modified by Ukon, Krupa, and Shiller, with the detector for measuring an impedance of the plasma by measuring the voltage and current source to also determine the plasma status to further control the plasma torch conditions.

Response to Arguments

5. Applicant's arguments filed 9/19/11 have been fully considered but they are not persuasive.

The applicant argues that Ukon does not show a control section for shutting down the plasma if the plasma changes or collapse into a toroidal plasma. It noted that

the Farrell shows a control section that, as modified by Ukon, it would have been obvious to further control the plasma to either shut down or power up the power generator depending on the detected plasma status including a toroidal shaped plasma. Also, as Ukon teaches for detecting the plasma shape including its contour, it would include the top or tail position of the plasma that will exits. Further Ukon shows the plasma device is oriented in an optical axis of the spectrometer and this teaching meets the recited optical detector that is directed at a position of the plasma which would include a top or tail portion.

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to SANG Y. PAIK whose telephone number is (571) 272-4783. The examiner can normally be reached on M-F (9:00-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tu Hoang can be reached on (571) 272-4780. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/SANG Y PAIK/

Primary Examiner, Art Unit 3742